



Medications for dermatological treatment

Rational topic therapy

- **Preparations can fulfill two functions:**
 - **To improve disrupted physiological functions of skin via an effect of the base**
 - **With use of active substance target the cause of complications**

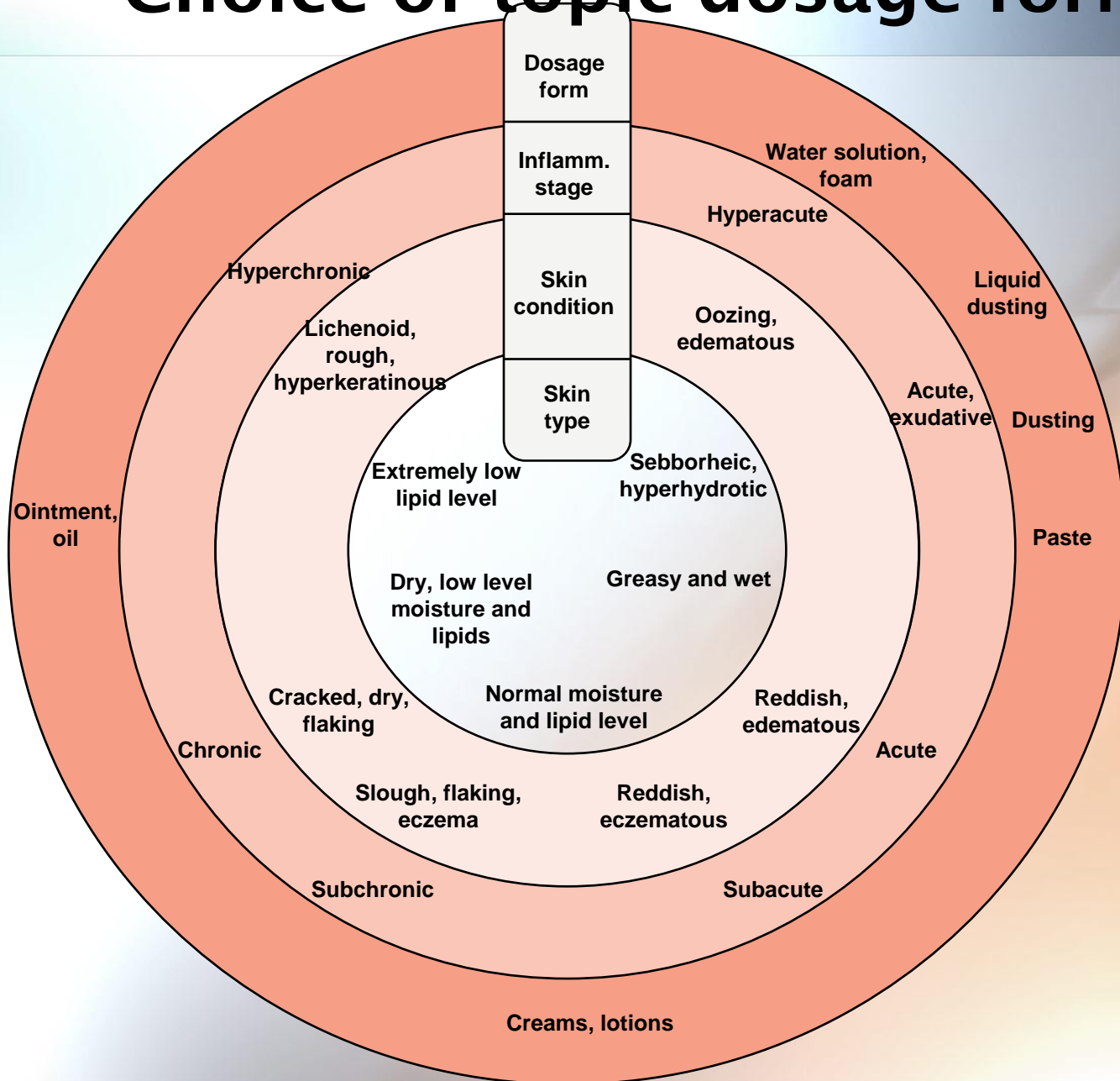
- **To achieve this objective:**
 - **Simultaneous application of regenerating preparations and preparations containing active substance**
 - **Or application of preparation capable of doing both effects**

- **Preparations improving disrupted physiological functions:**
 - **barrier**
 - Indifferent pastes
 - emollients, mainly w/o (with minimum content of synthetic emulsifier)
 - **depot**
 - indifferent pastes (ZnO) saturated with dusting

Choice of basis

- Disease stage
- Location
- Presence and phase of inflammation
- Age, skin type and condition
- Social and cosmetology approach
- Consumption amount of product

Choice of topic dosage form



Recommended amounts of topical preparations (g)

Location	Liquid	Semisolid	Dusting
Face	100	15	50
Hands	200	50	100
Scalp	200	100	50
Arms/Legs	200	200	200
Torso	500	200	200
Groin	100	25	50

Water solutions

- **Effect**
 - cooling, anti-inflammatory – evaporation of water on skin
- **Indication**
 - Acute, even oozy, bullous, skin erosion
 - dermatosis with drying crusts
 - Cleaning of ulcers
- **In adults, ethanol can be added (15-30 %)**

Ethanollic solutions (cca 60%)

- **Effect**
 - Excessive drying, degreasing
 - irritating
- **Indication**
 - Localised cutaneous manifestation on non inflammed skin
- **Not suitable for:**
 - Acute and subacute inflamed dermatosis
 - Large skin area

Liquid powders

- **Effect**

- cooling – water evaporation
- mild adstrigens, anti-inflammatory (ZnO)
- mechanically protective (layer of suspended particles)

- **Indications**

- acute a subacute non-oozing dermatosis
- Itchy dermatosis
- Contact dermatosis, sores

- **Indifferent basis:**

Zinci oxidi

Talci

Glyceroli 85%

Susp. Bentoniti (Susp. Aerosili) aa ad 100,0

- **Ethanol can be added**

- **Drugs (menthol 1-2 %, pix lithantracis 3-5 %
etc.)**

Dusting powders

- **Organic**

- starch (*Amylum oryzae*, *Amylum tritici*, *Amylum solani*) - limited use due to swelling and fermentation in sensitive areas

- **Anorganic**

- *Zinci oxidum*, *Talcum*, *Kaolinum ponderosum* (*Bolus alba*), *Calcii carbonas*, *Bismuthi subnitras aj.* - separately or in mixture

- **Effect**

- Cooling and drying skin surface, increasing skin surface
- Lowering inflammation level
- acute (not oozing) and subacute inflammation

Pastes

- Solid substances: Zinci oxidum, Calcii carbonas, starch (wheaten, rice)
- **Acc. to content of solid substances**
 - soft (to 40 %)
 - solid (more than 40 %)
- **by base type**
 - oleopastes
 - hydropastes
 - oil cream pastes
 - hydro cream pastes

- **Effect**

- Surface cooling, drying, anti-inflammatory (ZnO)
- occlusive, mild adstrigens
- Can replace disrupted barrier function of skin
 - Prevents water loss
 - Active substance penetration regulation (epidermis depot substitution)

- **Indication**

- inflammed acute non oozing, subacute and chronic dermatosis
- Dermatosi with disruption of barrier function
- Addition of active substances (antiseptic, antimycotics, anti-seborrheics etc.)

- **Thin layer of paste can be saturated with indifferent dusting**

Emulsion lotion

- **Effect**
 - hydrophilic (o/v) – cooling
 - lipophilic (v/o) – mildly occlusive
- **Use – carrier for dermatologic drugs**
(corticosteroids, anti-seborrheics, antibiotics etc.)

Creams

- **Hydrocreams (o/v)**

- **Effect**

- cooling, antiinflammatory
 - Quick resorption
 - water washable

- **Indication**

- acute and subacute non-oozing dermatosis
 - Suitable to intertriginous areas (prone to sores)
 - For removal of oleopastes (emulgation)

- **Oleocreams (v/o)**

- **Effect**

- Partially occlusive
 - Not easily washable
 - Active substances released slowly but absorbed deeper to skin structures

- **Indication**

- chronic dermatosis

- **Examples**

- **Hydrocreams**

- Ambiderman, Neoaquasorb cream, anion cream (Cremor anionicus), non-ion cream (Cremor nonionicus) etc.

- **Oleocreams**

- Cetyl alcohol cream (Alcoholis cetylici cremor), cream with alcohols from sheep wool fat (Alcoholum adipis lanae cremor), cooling cream (Cremor refrigerans), lanolin (Adeps lanae cum aqua), Cutilan (+ water), Synderman + water, softening cream (Cremor leniens) etc.

Ointment

- **Oleo-ointments**

- **Effect**

- occlusive
 - Increase of temperature
 - Increase of skin maceration – increase of permeability for active substances to deeper skin structures
 - Limited evaporation of water, heat elusion
 - Limited influence of water and vapour from outer environment
 - Not miscible and not washable with water

- Indication

- chronic dermatosis, primarily with hyperkeratic-squamous appearance (chronic eczema, chronic psoriasis etc.)
- Not suitable for acute inflammation
- Not suitable for large areas, not suitable during warm seasons
- Not suitable to hairy and potentially damp areas – groins, armpits etc.

• Examples

- Hydrocarbon bases (Vaselinum album, Vaselinum flavum)
- Natural bases: pork fat (Adeps suillus), vegetable oils, waxes
- Emulsifying ointments: Synderman, ointment with alcohols of adeps lanae (Alcoholium adipis lanae unguentum) etc.

Gels

- **Hydrogels**

- **Effect**

- Cooling, mildly anti-inflammatory
 - Repeated administration leads to grease removal and drying of skin

- **Indication**

- itchy and mildly inflammatory skin complications (solar dermatitis, urticarial exanthema, insect bite, etc.) – cooling effect
 - With drugs (anti acne, antiseptic, antiseboric etc.) – can be administered to scalp

• Examples

- carbopol gel – polyacrylic acid
concentration (carbomer) $> 1\%$
- methylcellulose gel – concentration $> 3\%$
- Carmellose gel – concentration $> 4\%$

Processing of selected drugs into semi-solid products

- **Acidum benzoicum, boricum, salicylum**
 - **Suspended:** premix in suitable excipient (liq. Paraffin, glycerol)
- **Acidum salicylicum**
 - keratoplastic (1-5%), keratolytic (>5%), anti-inflammatory, antipruritic according to concentration
 - **In pediatry care:**
 - *Recommended application:*
 - Newborns and children to 6 months: No application
 - 6 months to 6 years: maximum is 1% concentration
 - Children from 6 years: 5% concentration

Processing of selected drugs into semi-solid products

- **Balsamum peruvianum**

- Premix with ol. ricini – Oleocreams, Ointments
- Premix with polysorbate 80 – hydrocreams (emulsified)

- **Dexpanthenol**

- **Dissolved** – gels, hydrocreams (hot water)
- **Emulsified** – lipophilic preps. (1:1 hot water)
- Cornea erosion; Psoriasis; Ulcers; 1st dgr Burns; Xerodermia

Emollient ointment

Rp.

Dexpanthenoli	5,0
Tocoferoli	0,5
Urea Purae	5,0
Ac. Lactici	1,0
Natr.Lac.Sol 50%	4,0
Dimeticoni	6,0
Glyceroli 85%	2,0
Aq.Purif.	14,0
Cutilani	ad 100,0g

Preparation:

- Mix Ac.lactici, \ominus Natrii lactici, 6g of H₂O and glycerol in a beaker → dissolve urea (urea/aq.purif. solubility 1:1,2) .
- In mortar add tocoferol, dimeticon to Cutilan
- Emulsify the solution
- Dissolve dexpanthenol in 5g of warm H₂O → after cooling add to the mixture(rest of H₂O use for beaker rinsing, then add to the mixture).

Use:

- moisturizing, healing, emollient ointment; promotes the formation of protective skin film. Supplement for dry, eczematous, atopic skin, reduces itching

Emollient ointment with 10% of cannabis oil

Rp.

Ac. lactici	0,5
Aq. pur.	7,0
Cannabis sat. oleum	5,0
Cutilani	28,95
Dexpanthenoli	2,5
Dimeticoni 350	1,5
Glyceroli 85%	1,0
Lavandulae ol.	0,05
Natrii lactatis sol.	2,0
Urea	1,5

Preparation:

- In a beaker mixed Ac.lactici, \odot of lactate sodium, 2 g of H₂O and glycerol, then dissolve urea.
- In mortar add dimethicone to Cutilanu → gradually emulsify solution.
- In a beaker, dissolve 5 g of dexpanthenol in warm H₂O → after cooling add to the mixture.
- Add hempseed oil and lavender essential oil, properly incorporate into the ointment.

Use:

- moisturizing, healing, emollient ointment; promotes the formation of protective skin film. Supplement for dry, eczematous, atopic skin

Processing of selected drugs into semi-solid products

• Corticosteroids

- 1. potency class (lowest)
 - Dexamethasone to 0,01%
 - Dexamethasone-acetate to 0,01%
 - Hydrocortisone
 - Hydrocortisone-acetate
 - Prednisolone
- 2. potency class
 - Dexamethasone to 0,03%
 - Dexamethasone-acetate to 0,03%
 - Triamcinolone acetonide to 0,1%
 - Fluocinolone acetonide to 0,01%
- 3. potency class
 - Dexamethasone to 0,08%
 - Triamcinolone acetonide to 0,2%
 - Fluocinolone acetonide to 0,1%
- 4. potency class
 - Dexamethasone to 0,1%
 - Fluocinolone acetonide to 0,2%

- Third- and fourth-class CI for pregnant women and children under 2 years of age
- More lipophilic molecules – depot in the epidermis
- Rebound phenomenon
- Mostly suspension preparations
- In the case of solutions in propylene glycol, it is possible to emulsify/mix

Processing of selected drugs into semi-solid products

- **Dithranol**

- **Suspended**
- Insoluble in water
- Water environment- oxidation!!!
 - Even in emulsion preparation

Use

- Psoriasis (antiproliferative effects)
 - 0,03 - 0,05 %
 - Slower effect than corticosteroids
 - No rebound phenomena

Ointment with dithranol

Rp.

Dithranoli	0,1
Ac. salicylici	5,0
Vaselini flavi	ad 100,0

M.f. Ung.

Preparation:

- comminute dithranol
- Add comminuted salicylic acid
- **Premix with liquid paraffine**
- Add vaseline in portions
- Room temperature!!!

Use:

- psoriasis

Processing of selected drugs into semi-solid products

- **Chloramphenicol**

- **Emulsified**- dissolve 1:5 propylene glycol; oleointments, oleocrems
- **Suspended** - fine powder (EtOH), premix with l. paraffine; oleointments

- **Metronidazole**

- **Suspended** - finely powdered (EtOH) - oleoprep.
- **Dissolved** - in AQ (1:120); hydrogels

Processing of selected drugs into semi-solid products

- **Nystatin**
 - **Suspended:** glycerol (gels, mucus) or oils (olive)/base (ointments, creams)
- **Pix lithantracis**
 - **Dissolved:** oleointments, oleocreams
 - **Emulsified:** P80; hydrocreams

Gynecological cream

Rp.

Dexamethasoni	0,005
Propylenglycoli	3,5
Nystatini	3 MIU
Crm. Neoaquasorbi ad 50,5g	
M.f. crm	
D.S. 1-2x a day	

Preparation:

- Spread nystatin in dexametasone trituration
- Add propylene glycol, then add crm. neoquas in equal parts, stir for homogenous preparation

Use:

- Anti-inflammatory and antimycotic effect

Processing of selected drugs into semi-solid products

- **Pix lithantracis**

SIGNIFICANT PHOTSENSIBILITY POTENTIAL

Contraindication:

- 1.trimester in pregnant women, breastfeeding period; children up to 1 year
- EU: full prohibition of PL use in children

Application:

- small areas, less than 5% of body surface
- short term, 3 weeks maximum
- kidney function monitoring

Use:

- 1 - 12 years in 1-5% concentration
- autumn - winter period

Pix ointment

Rp.

- **Ac. salicylici**
- **Picis lithanthracis** **aa 5,0**
- **Span 80** **3,0**
- **Vaselini fl.** **ad 100,0**
- **M. f. ung.**
- **D. S. use 1x a day, evening**

Preparation:

- Disperse pix in vaseline using Span 80
- Prepare suspension ointment with salicylic acid

Use:

- Psoriasis

Processing of selected drugs into semi-solid products

- **Sulphur ad usum externum**
 - Suspended
- **Tetracycline**
 - Suspended; oleopreparations
- **Urea**
 - Dissolved - hydrocreams
 - Emulsified - emulsifying and emulsive oleopreparations
 - Suspended - oleo-ointments with no water

Antiseborrheic liquid dusting with sulphur

Rp.

Sulphuris praecipitati	5,0
Zinci oxidi	15,0
Talci	15,0
Glycerol	15,0
Aq. Purificata	ad 100,0
M. f. susp.	

Preparation:

- Premix solids with glycerol
- Add water in portions (Aerosil is better)
- Homogenize

Use:

- Seborrhoeic dermatitis

Ethanolic Tetracyclin solution

Rp.

Tetracyclini HCl **0,3**
Ethanoli 60 % **ad10,0**

M. f. sol.

D. S. 3% tetracyclin solution, 2-3× a day

Preparation:

- Tetracyclin HCl dissolved in ethanol

Use:

- Antibiotic ethanolic solution



EXAMPLES OF TOPICAL PREPARATION

Ointment with lavender oil

Rp.

Ol. Levandullae	3,0
Glycerini	10,0
Aq. Calcis	20,0
Syndermani	50,0
Vas. Flavi	20,0

M.f. ung

D.S. for gresaing

Preparation:

- In mortar synderman + vaseline
- Emulsify aq. calcis and glycerol
- Lavandullae eth.

Use:

- pH increase, mild antimicrobial effect (aq. calcis)
- Increase of skin perfusion, antiseptic (lavander oil)
- anti-itchy (telaprevir users - rash)

Capsaicine ointment

Rp.

Mentholi	2,5
Methylsalicylati	15,0
Camphori	5,0
Tinct.capsaicini	5,0
Ol.lavandulae	1,25
Ambidermani	221,25
M.f. ung	
D.S. several times a day	

Preparation:

- Menthol and camphora = eutectic mixture
- Add to ambiderman, mix thoroughly
- Add methylsalicylate , Tinct. capsaicini and lavender oil

Use:

- Methyl salicylate is a potent anti-irritant with anti-inflammatory, analgesic, astringent and anti-inflammatory effect.
- Capsaicin is a plant alkaloid improving blood circulation. Menthol and camphor also improve blood circulation.

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THANKS FOR ATTENTION